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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,013	05/23/2001	Cheng-Chung Lee	64,600-076	9975

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EXAMINER
PHINNEY, JASON R

ART UNIT	PAPER NUMBER
2879	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/864,013	Applicant(s) LEE ET AL.
	Examiner Jason Phinney	Art Unit 2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *13-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-12, drawn to the field emission display panel, classified in class 313, subclass 495.

II. Claim13-20, drawn to the method, classified in class 445, subclass 24.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the plurality of emitter stacks could alternatively be formed by CVD, PVD, spraying or sputtering.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Randy Tung on 7 November 2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-20 are

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S. Patent No. 6,400,091 to Deguchi.

Deguchi discloses a field emission display panel with a first electrically insulating plate (Figure 3, #41) on which is formed a plurality of emitter stacks positioned parallel to a transverse direction of the insulating plate and each comprising a layer of a first electrically conductive material (#45) on top of which is a layer of nanotube emitters (#14). The width of the nanotube layer is less that ¾ the width of the first electrically conductive material (see Figure 1A, #'s 14

and 12 respectively). Deguchi further discloses that there should be a second electrically insulating plate (Figure 4, #42) placed over and spaced apart from the first electrically insulating plate with a layer of a second electrically conductive material (#46) on the inside surface. Deguchi further discloses that there should be a multiplicity of strips of fluorescent powder coating on the second electrically conductive material each for emitting a red, green, or blue light upon activation by the electrons emitted from the plurality of emitter stacks (Column 9, Lines 40-49). Finally, Deguchi discloses that there should be a plurality of side panels joining the peripheries of the first and second electrically insulating plates together to form a vacuum tight cavity (Column 9, Lines 1-6).

3. Claims 2, 3, 5, 7-9, and 12 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S. Patent No. 6,400,091 to Deguchi.

Deguchi discloses the field emission display panel of Claim 1 as described above

Regarding Claim 2, Deguchi further exemplifies that the width of the nanotube layer is less that ¾ the width of the first electrically conductive material but more than ¼ the width of the first electrically conductive material (see Figure 1A, #'s 14 and 12 respectively).

Regarding Claim 3, Deguchi further discloses that there should be a black matrix layer in-between the multiplicity of fluorescent strips (Column 9, Lines 45-49).

Regarding Claim 5, Deguchi further discloses that the layer of first electrically conductive material is a cathode (Figure 3, # 45 and Column 8, Lines 49-51).

Regarding Claim 7, Deguchi further discloses that the layer of second electrically conductive material is an anode (Figure 3, # 46 and Column 8, Lines 52-53).

Regarding Claim 8, Deguchi further discloses that the layer of second electrically conductive material is formed of indium-tin-oxide (Column 5, Lines 23-24).

Regarding Claim 9, Deguchi further discloses that the layer of nanotube emitters should be formed of a mixture of nanometer dimensioned hollow tubes and a binder material (Column 6, Lines 44-61).

Regarding Claim 12, Deguchi further discloses that there should be a second layer of the first electrically conductive material (Figure 1A, #15 and Column 5 Lines 14-15 and 52-53 explain that both layers can be of aluminum). The second layer is formed on top of a plurality of rib sections (Figure 1A, #16) and function as a second anode.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,400,091 to Deguchi in view of U.S. Patent No. 6,407502 to Hidler.

Deguchi discloses the field emission display panel of Claim 1 as described above.

Deguchi fails to exemplify that the first and second electrically insulating plates should be formed of a ceramic material that is substantially transparent.

Hidler teaches that the insulating plates should be formed of a ceramic material that is substantially transparent (Column 2, Lines 53-55) in order to increase the brightness of the display panel.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the display panel of Deguchi with the substrate of Hidler in order to increase the brightness of the display panel.

2. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,400,091 to Deguchi in view of U.S. Patent No. 6,414,433 to Moore.

Deguchi discloses the field emission display panel of Claim 1 as described above.

Deguchi fails to exemplify that the layer of a first electrically conductive material should be a silver paste.

Moore, in an alternate display panel, teaches that the layer of a first electrically conductive material should be a silver paste (Column 1, Lines 64-66) because it can be easily printed and formed in various patterns, thereby facilitating production.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the display panel of Deguchi with the silver paste of Moore in order to facilitate the production of the display panel.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,400,091 to Deguchi in view of U.S. Patent No. 6,057,637 to Zettl.

Deguchi discloses the field emission display panel of Claim 1 as described above.

Deguchi fails to exemplify that the layer of nanotube emitters should be formed of a mixture of nanometer dimensioned tubes of carbon, diamond, or diamond-like carbon and a polymeric-based binder.

Zettl, in the similar field of field emission electron sources, teaches that the layer of nanotube emitters should be formed of a mixture of nanometer dimensioned tubes of carbon, diamond, or diamond-like carbon and a polymeric-based binder (Column 3, Lines 1-5) in order to retain the nanotubes in the desired location.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the display panel of Deguchi with the polymeric-based binder of Zettl in order to retain the nanotubes.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,400,091 to Deguchi in view of U.S. Patent No. 5,939,823 to Kiyomiya.

Deguchi discloses the field emission display panel of Claim 1 as described above.

Deguchi fails to exemplify that each of the multiplicity of stripes of fluorescent powder coating should emit a light of red, green, or blue that is different than the light emitted by its immediate adjacent strips when activated by electrons from the plurality of emitter stacks.

Kiyomiya, in an alternate display, teaches that each of the multiplicity of stripes of fluorescent powder coating should emit a light of red, green, or blue that is different than the light emitted by its immediate adjacent strips when activated by electrons from the plurality of emitter stacks (Figure 1, #'s 1R, 1G, and 1B correspond to Red, Green, and Blue fluorescent

strips). The fluorescent strips are arranged in this manner in order to provide all three colors for any given pixel on the screen.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the display panel of Deguchi with the location of the fluorescent strips of Kiyomiya in order to produce a display where each of the three colors of light is capable of being emitted from each pixel.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Phinney whose telephone number is (703) 305-3999. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JP
November 12, 2002

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